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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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[REDACTED] EXAMINER

NGUYEN, LINH V

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

2819

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|--|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/944,982 | PATIRE ET AL.  | |
| | Examiner | Art Unit | |
| | Linh V Nguyen | 2819 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 July 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 25 is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 31 August 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 – 7, 9, 10, 11, 12, and 14 – 24, are rejected under 35 U.S.C. 102(b) as being anticipated by Dent U.S. Patent No. 5,790,606.

Regarding to claim 1, Fig. 7 of Dent disclose a method for demodulating a signal comprising: receiving a modulated sampled signal (Antenna 1 - N); buffering a consecutive sequence of the modulated sampled signal (100) and comparing (110) the consecutive sequence with all possible valid modulated sampled signals (Signal prediction value); and determining a bit decision representing a demodulation (See table 7) of the consecutive sequence of the modulated sampled signal, the determination made being based on a valid modulated sampled signal located closest to the consecutive sequence of the modulated sample signal in a constellation (Col. 16 line 63 – Col. 17 line 8)

Regarding to claim 3, further comprising quantizing (Digitized sample on Col. 15 line 14, is a quantized signal from analog signal received from antenna by quantizing data signal in A/D converter.) the consecutive sequence of the modulated sampled signal before the buffering , thereby forming quantized sequential signals, the quantized consecutive sequence being used in the comparing.

Regarding to claim 4. The method according to claim 3, comprising concatenating the quantized sequential signals to form a part of an address to a memory, the address and memory being used in the determining (Bus 170).

Regarding to claim 5. The method according to claim 4, comprising storing in the memory bit decisions representing demodulation of all possible consecutive sequences of the modulated sampled signal, the address being used to access the bit decision representing a demodulation of the consecutive sequence of the modulated sampled signal (Fig. 7(160), Col. 16 line 63 – Col. 17 line 8).

Regarding to claim 6. The method according to claim 5, comprising using output from a counter (190) as part of the address to the memory.

Regarding to claim 7. The method according to claim 1, comprising buffering consecutive phase locations of the modulated sampled signal (Fig. 6a, 6b)

Regarding to claim 9, wherein the comparing comprises measuring a distance between the consecutive sequence and each valid modulated sampled signals (Col. 19 line 39).

Regarding to claim 10, The method according to claim 9, comprising measuring the distance between the consecutive sequence and each valid modulated sampled signals by measuring the difference between phases of the consecutive sequence and each valid modulated sampled signal (Col. 19 line 31 – 39).

Regarding to claim 11, Dent as applied to claim 9 above discloses every aspect of applicant's claimed invention, except for not explicitly disclose measuring a cosine (in-phase) of a phase difference between the consecutive sequence and each valid

modulated signal. However, Dent disclosing a sumsquare error result for comparing (110) sequence signal and prediction signal of phase and amplitude modulation (Fig. 1 – 6) therefore the cosine phase different or in-phase different between received signal and valid signal must be inherent in the sumsquare error measurement.

Regarding to claim 12, Fig. 7 of Dent disclosing a method for demodulating a modulated signal comprising: receiving at least one modulated input waveform(Antenna); determining all possible valid modulated waveforms (Tables 1 – 12)); comparing (110) the received at least one modulated input waveform with the possible valid modulated waveforms; and determining bit decisions (table 7, Fig. 7[140]) representing a demodulation of the at least one modulated input waveform, each bit decision representing the valid modulated waveform closest to each received at least one modulated input waveform (Col. 16 line 63 – Col. 17 line 8).

Regarding to claim 14. The method according to claim 12, further comprising quantizing (Digitized sample on Col. 15 line 14, is a quantized signal from analog signal received from antenna by quantizing data signal in A/D converter) the at least one modulated input waveform to form quantized sequential signals.

Regarding to claim 15. The method according to claim 14, further comprising concatenating the quantized sequential signals to form a part of an address to a memory (Bus 170)

Regarding to claim 16. The method according to claim 15, comprising storing the bit decisions in the memory (160), the address (bus 170) being used to access the bit

decisions (table 7 of Signal Predictor) representing a demodulation of the at least one modulated input waveform

Regarding to claim 17, Fig. 7 Riggle et al as discussed above, disclose a demodulator comprising: a quantizer, the quantizer receiving an input modulated waveform (Digitized sample on Col. 15 line 14, is a quantized signal from analog signal received from antenna by quantizing data signal in A/D converter), the quantizer quantizing the input modulated waveform producing quantized data (Digitized sample on Col. 15 line 14, is a quantized signal from analog signal received from antenna by quantizing data signal in A/D converter); and at least one memory device (Table 7, 160, 150) operatively connected to the quantizer, the at least one memory device containing bit decisions (Table 7) representing demodulation of the input modulated waveform, the quantized data being used to form an address to the at least one memory device (New Metrics and address values).

Regarding to claim 18. The demodulator according to claim 17, further comprising at least one buffer(100), the at least one buffer operatively connected between the quantizer and the at least one memory device (160, 150), the at least one buffer forming the memory address using the quantized data and sending the memory address to the at least one memory device to obtain the bit decisions (Signal predictor).

Regarding to claim 19. The demodulator according to claim 18, further comprising at least one counter (190) operatively connected to the at least one memory device, an output from the at least one counter being used as part of the memory address to access the bit decisions.

Regarding to claim 20. The demodulator according to claim 17, wherein each at least one buffer is a shift register (See Col. 15 lines 15 - 19).

Regarding to claim 21. The demodulator according to claim 17, wherein the at least one memory device is a ROM (intended of use).

Regarding to claim 22. The demodulator according to claim 17, wherein the at least one memory device is a RAM (intended of use).

Regarding to claims 23, and 24. The demodulator according to claim 17, wherein the quantizer is an angle or phase quantizer (inherent to Fig. 1 - 6) .

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 8, and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Dent.

Regarding to claim 2 and 13, Dent as applied to claims 1 and 12 above disclose every aspect of applicant's claimed invention except for modulated GSMK wave form. However it has been held that a recitation is intended to be employed does not differentiate the claimed method from a prior art system satisfying the claimed method limitation. Ex Parte Masham, 2 USPQ2d 1647 (1987).

Regarding to claims 8, Dent as applied to claims 1 and 7 above disclose every aspect of applicant's claimed invention except for buffering four consecutive phase locations. However on Col. 4 lines Col. 3 line 16, teach a method of a block n samples for phase locations of multiple antennas. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made optimum value the of n samples in the block to four, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding to claim 11, Dent as applied to claim 9 above disclose every aspect of applicant's claimed invention, except for not explicitly disclose measuring a cosine of a phase difference between the consecutive sequence and each valid modulated signal. However, Dent disclosing a sumsquare error result for comparing modulated signal of sequence signal and prediction signal of phase modulation

Allowable Subject Matter

5. Claim 25 is allowed.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (703) 305-1934. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Tokar can be reached at (703) 305-3493. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

LVN

09/06/2003



Michael Tokar
Supervisory Patent Examiner
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